

Appl. No. 10/786,502
Amdt. dated January 19, 2006
Reply to Office Action of 10/19/05

PATENT

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1-103. (canceled)

104. (Previously presented) A tubular insert for insertion into an ear canal of a wearer, said tubular insert comprising:

a radially flexible, substantially axially rigid sound conduction tube constructed and adapted for removable connection to a receiver section of a hearing device and for comfortable and consistent insertion into and removal from the ear canal, for delivering sound to the tympanic membrane when said tubular insert is worn in the ear canal; and

a first concentric seal projecting radially from said sound conduction tube to flexibly engage the wall of the bony part of the ear canal in a sealing manner and form a first confined space between said seal and the tympanic membrane when said tubular insert is worn in the ear canal; said seal having a relatively small pressure vent extending therethrough, and adapted to cooperate with a second concentric seal projecting radially from said sound conduction tube or the receiver section to flexibly engage the wall of the cartilaginous part of the ear canal in a sealing manner and form a second confined space between said seals, said second seal having a relatively larger occlusion-relief vent extending therethrough;

whereby, when said tubular insert is worn in the ear canal, said vents provide substantial acoustic sealing for sound delivered in said first space, while directing occlusion sounds away from the tympanic membrane.

105. (Previously presented) The tubular insert of claim 104, wherein:
said sound conduction tube is constructed and adapted to be disposable for selective replacement thereof.

106. (Previously presented) The tubular insert of claim 104, wherein:

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said sound conduction tube is constructed and adapted to possess structural characteristics of kink-resistance and non-collapse when inserted in said ear canal.

107. (Previously presented) The tubular insert of claim 104, wherein:
said sound conduction tube has generic configurations and sizes to accommodate any of a variety of ear canal sizes and shapes.

108. (Original) The tubular insert of claim 104, wherein:
said sound conduction tube comprises multiple tubing for either multiple channel sound conduction or venting.

109. (Original) The tubular insert of claim 104, wherein:
said sound conduction tube is at least 8 mm in length.

110. (Original) The tubular insert of claim 104, wherein:
said sound conduction tube has an inside diameter not greater than 2 mm.

111. (Original) The tubular insert of claim 104, wherein:
said sound conduction tube is constructed and adapted to provide a boost for conducted sounds at the high range of audiometric frequencies.

112. (Previously presented) The tubular insert of claim 104, wherein:
the first concentric seal comprises a pressure vent in the form of a hole, cavity, slit, or tube having a diameter or width not greater than 0.5 mm.

113. (Previously presented) The tubular insert of claim 112, wherein:
said pressure vent is incorporated directly on the first concentric seal.

114. (Original) The tubular insert of claim 112, wherein:
said pressure vent is indirectly incorporated along said sound conduction tube or a connector associated with said sound conduction tube.

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115. (Previously presented) The tubular insert of claim 104, wherein:
said sound conduction tube is constructed and adapted to extend medially past the
first concentric seal toward said tympanic membrane, when said tubular insert is worn in said ear
canal.

116. (Previously presented) The tubular insert of claim 104, wherein:
said seals are hollow and of generally cylindrical shape.

117. (Previously presented) The tubular insert of claim 104, wherein:
said seals are flanged, mushroom shaped, or clustered.

118. (Previously presented) The tubular insert of claim 104, wherein:
the cross sectional perimeter of each of said seals is either circular, elliptical, or
ovals and inferiorly pointed.

119. (Previously presented) The tubular insert of claim 104, wherein:
said seals are constructed and adapted to contact the walls of said ear canal with a
span of at least 2 mm longitudinally, when said tubular insert is worn in said ear canal.

120. (Previously presented) The tubular insert of claim 104, wherein:
at least one of said seals further comprises medication material selected from a
group including anti-bacterial and anti-microbial agents.

121. (Previously presented) The tubular insert of claim 104, wherein:
at least one of said seals further comprises lubricant to facilitate insertion and
removal of said tubular insert into and from said ear canal.

122. (Previously presented) The tubular insert of claim 104, including:
means for removably connecting said sound conduction tube to said receiver
section.

123. (Original) The tubular insert of claim 122, wherein:

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said connecting means comprises a snap-on, threaded, spring-loaded, pressure-fit, or side-slide mating mechanism.

124. (Previously presented) The tubular insert of claim 122, further including:
a tube connector for concentric coaxial connection of said tubular insert sound
conduction tube over said receiver section.

125. (Original) The tubular insert of claim 104, including:
means adapting said tubular insert for hearing enhancement of a hearing impaired
wearer.

126. (Original) The tubular insert of claim 104, including: means adapting said
tubular insert for audio communications.

127. (canceled)

128. (Previously presented) A tubular insert for an ear canal of a wearer,
comprising:

a sound conduction tube constructed and adapted for removable connection to a
sound receiver module of a hearing device, for comfortable insertion into and removal from the
ear canal, and when inserted, to deliver sound received by the module to the tympanic
membrane;

at least one appendage on the sound conduction tube to establish a substantially
acoustically sealed space in which the sound is to be delivered to the tympanic membrane; and

another appendage on the sound conduction tube or on the sound receiver module
for cooperating with said at least one appendage to direct occlusion sounds away from the
tympanic membrane when said tubular insert is connected to said sound receiver module and
worn in the ear canal.

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129. (Currently Amended) A tubular sound conduction tube for removable connection to a sound receiver section of a hearing device and insertion into an ear canal of a wearer, the sound conduction tube comprising:

a first sound conduction channel coupled to the sound conduction tube for enabling delivery of sound to the tympanic membrane within an acoustically sealed space; and

a second sound conduction channel simultaneously directing occlusion sounds away from the tympanic membrane, when the sound conduction tube is connected to said sound receiver section and inserted in the ear canal the second conduction channel including a directional feature to direct occlusion sounds away from the tympanic membrane.

130. (Previously Presented) A canal sound conduction tube for a hearing device, comprising:

a tube portion for insertion into an ear canal of a user in proximity to the eardrum;
and

means operatively associated with the tube portion and the hearing device for delivering received sounds to an acoustically sealed space about the eardrum; and

means operatively associated with the tube portion and the hearing device for concurrently directing occlusion sounds away from the eardrum, when worn by the user.